

10/586334

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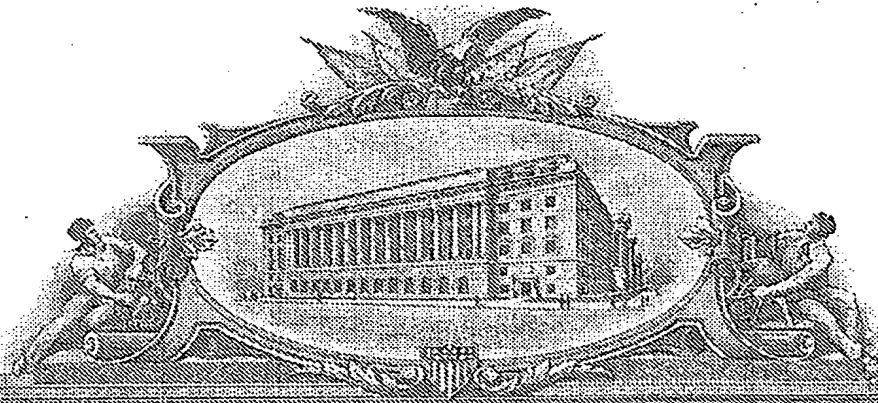
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World Intellectual Property Organization (WIPO) - Geneva, Switzerland  
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# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

*February 18, 2005*

**THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE.**

**APPLICATION NUMBER: 60/537,875**

**FILING DATE: *January 20, 2004***

**RELATED PCT APPLICATION NUMBER: PCT/US05/02425**



Certified by

Under Secretary of Commerce  
for Intellectual Property  
and Director of the United States  
Patent and Trademark Office



22764 U.S. PTO

012004

PTO/SB/16 (08-03)

Approved for use through 07/31/2006. OMB 0651-0032  
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# **PROVISIONAL APPLICATION FOR PATENT COVER SHEET**

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

Express Mail Label no. EL99507878405

031431 U.S. PTO  
60/537875



012004

INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
Edward Marion		Casaccia		Carmichael, California	
David Alan		Casper		Nevada City, California	
<input checked="" type="checkbox"/> Additional inventors are being named on the 1 separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
CONTEXT SENSITIVE AUDIO/VIDEO MIXING AND SWITCHING CONTROL PANEL					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number <span style="border: 1px solid black; display: inline-block; width: 200px; height: 1.2em; vertical-align: middle;"></span>					
OR					
<input checked="" type="checkbox"/> Firm or Individual Name		JOSEPH S. TRIPOLI, THOMSON LICENSING INC.			
Address		PATENT OPERATIONS			
Address		P. O. BOX 5312			
City		PRINCETON	State	NJ	ZIP 08543-5312
Country		USA	Telephone	609 - 734-6834	Fax 609 - 734-6888
ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification Number of Pages		3	<input type="checkbox"/> CD(s), Number _____		
<input checked="" type="checkbox"/> Drawing(s) Number of Sheets		3	<input type="checkbox"/> Other (specify) _____		
<input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.					
<input type="checkbox"/> A check or money order is enclosed to cover the filing fees					
<input checked="" type="checkbox"/> The Director is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 07-0832					
<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.					
FILING FEE AMOUNT (\$) <div style="border: 1px solid black; width: 100px; text-align: center; margin: 0 auto;">160</div>					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____					

Respectfully submitted,  
SIGNATURE

[Page 1 of 2]

Date

1/20/04

TYPED or PRINTED NAME

Robert B. Levy

REGISTRATION NO.  
(if appropriate)

28,234

Docket Number:

PU040012

TELEPHONE

609-734-6820

## **USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT**

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Provisional Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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**PROVISIONAL APPLICATION COVER SHEET**  
**Additional Page**

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<b>Docket Number</b> PU040012		
<b>INVENTOR(S)/APPLICANT(S)</b>		
<small>Given Name (first and middle (if any))</small>	<small>Family or Surname</small>	<small>Residence (City and either State or Foreign Country)</small>
Paul Martell	Trethewey	Nevada City, California

[Page 2 of 2]

Number 2 of 2

**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

<h2 style="margin: 0;">FEE TRANSMITTAL</h2> <h3 style="margin: 0;">for FY 2004</h3> <p style="font-size: small; margin: 5px 0;">Effective 10/01/2003. Patent fees are subject to annual revision.</p> <p><input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27</p>		<p style="text-align: center; font-size: x-small;">Complete if Known</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 50%;">Application Number</td><td></td></tr> <tr><td>Filing Date</td><td></td></tr> <tr><td>First Named Inventor</td><td>Edward Marion Casaccia</td></tr> <tr><td>Examiner Name</td><td></td></tr> <tr><td>Art Unit</td><td></td></tr> <tr><td>Attorney Docket No.</td><td>PU040012</td></tr> </table>		Application Number		Filing Date		First Named Inventor	Edward Marion Casaccia	Examiner Name		Art Unit		Attorney Docket No.	PU040012
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First Named Inventor	Edward Marion Casaccia														
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Attorney Docket No.	PU040012														
<p><b>TOTAL AMOUNT OF PAYMENT</b> (\$) 160</p>															

<p style="text-align: center; font-size: x-small;">METHOD OF PAYMENT (check all that apply)</p> <p> <input type="checkbox"/> Check    <input type="checkbox"/> Credit card    <input type="checkbox"/> Money Order    <input type="checkbox"/> Other    <input type="checkbox"/> None         </p> <p><input checked="" type="checkbox"/> Deposit Account:</p> <table style="width: 100%;"> <tr> <td style="width: 20%;">Deposit Account Number</td> <td>07-0832</td> </tr> <tr> <td>Deposit Account Name</td> <td>THOMSON LICENSING INC.</td> </tr> </table> <p style="font-size: x-small;">The Director is authorized to: (check all that apply)</p> <p> <input checked="" type="checkbox"/> Charge fee(s) indicated below    <input checked="" type="checkbox"/> Credit any overpayments  <input type="checkbox"/> Charge any additional fee(s) during the pendency of this application  <input type="checkbox"/> Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.         </p>					Deposit Account Number	07-0832	Deposit Account Name	THOMSON LICENSING INC.	<p style="text-align: center; font-size: x-small;">FEE CALCULATION (continued)</p> <h3 style="margin: 0;">3. ADDITIONAL FEES</h3> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Large Entity</th> <th colspan="2">Small Entity</th> <th rowspan="2">Fee Description</th> <th rowspan="2">Fee Paid</th> </tr> <tr> <th>Fee Code</th> <th>Fee (\$)</th> <th>Fee Code</th> <th>Fee (\$)</th> </tr> </thead> <tbody> <tr><td>1051</td><td>130</td><td>2051</td><td>65</td><td>Surcharge - late filing fee or oath</td><td></td></tr> <tr><td>1052</td><td>50</td><td>2052</td><td>25</td><td>Surcharge - late provisional filing fee or cover sheet.</td><td></td></tr> <tr><td>1053</td><td>130</td><td>2053</td><td>130</td><td>Non-English specification</td><td></td></tr> <tr><td>1812</td><td>2,520</td><td>1812</td><td>2,520</td><td>For filing a request for reexamination</td><td></td></tr> <tr><td>1804</td><td>920*</td><td>1804</td><td>920*</td><td>Requesting publication of SIR prior to Examiner action</td><td></td></tr> <tr><td>1805</td><td>1,840*</td><td>1805</td><td>1,840*</td><td>Requesting publication of SIR after Examiner action</td><td></td></tr> <tr><td>1251</td><td>110</td><td>2251</td><td>55</td><td>Extension for reply within first month</td><td></td></tr> <tr><td>1252</td><td>420</td><td>2252</td><td>210</td><td>Extension for reply within second month</td><td></td></tr> <tr><td>1253</td><td>950</td><td>2253</td><td>475</td><td>Extension for reply within third month</td><td></td></tr> <tr><td>1254</td><td>1,480</td><td>2254</td><td>740</td><td>Extension for reply within fourth month</td><td></td></tr> <tr><td>1255</td><td>2,010</td><td>2255</td><td>1,005</td><td>Extension for reply within fifth month</td><td></td></tr> <tr><td>1401</td><td>330</td><td>2401</td><td>165</td><td>Notice of Appeal</td><td></td></tr> <tr><td>1402</td><td>330</td><td>2402</td><td>165</td><td>Filing a brief in support of an appeal</td><td></td></tr> <tr><td>1403</td><td>290</td><td>2403</td><td>145</td><td>Request for oral hearing</td><td></td></tr> <tr><td>1451</td><td>1,510</td><td>1451</td><td>1,510</td><td>Petition to institute a public use proceeding</td><td></td></tr> <tr><td>1452</td><td>110</td><td>2452</td><td>55</td><td>Petition to revive - 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late filing fee or oath		1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.		1053	130	2053	130	Non-English specification		1812	2,520	1812	2,520	For filing a request for reexamination		1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action		1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action		1251	110	2251	55	Extension for reply within first month		1252	420	2252	210	Extension for reply within second month		1253	950	2253	475	Extension for reply within third month		1254	1,480	2254	740	Extension for reply within fourth month		1255	2,010	2255	1,005	Extension for reply within fifth month		1401	330	2401	165	Notice of Appeal		1402	330	2402	165	Filing a brief in support of an appeal		1403	290	2403	145	Request for oral hearing		1451	1,510	1451	1,510	Petition to institute a public use proceeding		1452	110	2452	55	Petition to revive - unavoidable		1453	1,330	2453	665	Petition to revive - unintentional		1501	1,330	2501	665	Utility issue fee (or reissue)		1502	480	2502	240	Design issue fee		1503	640	2503	320	Plant issue fee		1460	130	1460	130	Petitions to the Commissioner		1807	50	1807	50	Processing fee under 37 CFR 1.17 (q)		1806	180	1806	180	Submission of Information Disclosure Stmt		8021	40	8021	40	Recording each patent assignment per property (times number of properties)		1809	770	2809	385	Filing a submission after final rejection (37 CFR § 1.129(a))		1810	770	2810	385	For each additional invention to be examined (37 CFR § 1.129(b))		1801	770	2801	385	Request for Continued Examination (RCE)		1802	900	1802	900	Request for expedited examination of a design application	
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Signature				Date	January 20, 2004

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**A. Brief summary of the invention**

A set of modular control panels bringing control of audio mixing, video switching and effects, and external device functions to the hands of a single user. This level of control concentration by a single individual is made possible by software that constantly redefines the function and/or devices controlled by the buttons, faders, switchers, positioner, knobs, and all other physical controls on the panel(s) to coincide with the sources, effects, functions etc. required at that particular instant in a live television production. Contrariwise, the panel also allows the user single-button access to pre-stored multiple-device selections, effects, and functions to enable production flexibility to deal with unexpected events.

**B. Keywords: list keywords or combinations of keywords to guide patent and literature searches. Underline the most important keywords.**

Switcher, Mixer, Automation, E-MEM, GPI, PVTV

**C. Brief discussion of the problem solved by the invention**

Existing systems for single-user control of live productions require the user to reach for a touchscreen and/or mouse for all control and configuration functions. This is undesirable because the hand-eye coordination required for using a graphic user interface removes the user's attention from the program script and the video monitors. A physical panel with tactile controls allows direct hand control in a manner not dissimilar from touch-typing, such manner already being familiar to operators of video switchers and audio mixers.

**D. Discussion of how you or others have implemented similar things in the past, including the manner in which others have attempted to solve the problem. Point out disadvantages and weaknesses in previous practice. Include literature references where available.**

This is a new area of endeavor. There are two existing systems for supplying a single point of control for live production operations. ParkerVision's PVTV system has no

physical user interface device, and Ross Video's OverDrive production control system utilizes a traditional video switcher control panel.

**E. Description of the invention, including one or more practical embodiments of the invention in sufficient detail to allow one with ordinary skill in the art to practice the invention. Include schematic(s), flow chart(s) and/or figures to clarify operation of the invention. Point out important features and items you believe to be new. State advantages of the invention and sacrifices, if any, made to achieve these advantages. Describe any experiments conducted and the results of those experiments.**

The invention is a combination of software and hardware through which a single physical control panel (possibly segmented into discrete modules for video switching, audio mixing, and/or device control) offers a user the ability to control all the audio and video production devices required for a complex live television broadcast including but not limited to video switchers, audio mixers, video and audio servers, video and audio routers, character generators, still stores and clip players, camera CCUs, camera robotics, and lighting controllers. The necessary element in making this wide variety of control feasible within a panel of sufficient physical simplicity and accessibility to allow control by no more than one user is the ability to change the functions of the various controls on the panel according to the context of the production at any given instant.

As an example, it would not be possible for a single human being to synchronously move all of the buttons, faders, joystick positioners, etc. required to do a transition between a studio camera shot with multi-layered video overlays and multiple audio sources open to a remote news live shot using traditional switching and mixing control surfaces. However, if a specialized panel is configured by software to simultaneously trigger movement of audio faders, re-selection of video switcher sources and effects, output content of character generators and still stores, etc. by assigning all of those synchronous activities to a single control, the user need only actuate that control. The invention expands on simple "yes/no" logic in such actuation by allowing the user to retain elements from the previous on-air configuration and/or "pre-use" elements from an upcoming on-air configuration.

The drawing in Attachment 1 depicts one possible configuration for such a panel: the rightmost portion of the drawing contains a subpanel used for device control. The top portion of that subpanel is camera control. Software determines which camera is under control of the positioner and knob controls at any given moment and also lights LED displays informing the user of which camera is currently in use and which is next to be used. The user may adjust the on-air camera with the positioner and knob controls or select any other camera to adjust by pressing the appropriately labeled

button. None of these actions have any bearing on which camera is actually being taken to air. The button field below the camera controls allow the user to manually trigger playout of software staged character generator and/or still store events or to call upcoming or previous events and trigger playout of them. In this area the user is also able to choose whether to take the event to air instantaneously or through the means of some pre-configured effects such as a character generator typing out letters individually.

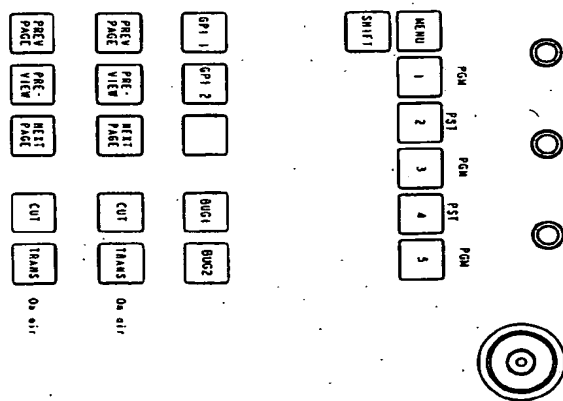
The center section of the panel provides the user a means to monitor and adjust the levels of the audio sources required by the production at any given moment as assigned by software as well as to monitor and adjust the master output audio level. Motorized faders are positioned by the software but such positioning can be overridden when the fader is moved by a human hand. The button field above the faders allows the user to select source(s) to be preserved from the current mix to the next one required by software as well as to open source(s) from the next mix while the current mix is still being used.

The leftmost section of the panel is used to apply human timing and esthetic sense to the progression through the software defined configurations used in the production. In the example cited above, the transition from the complex studio shot to the news remote would be accomplished simply by pressing the "take" button. Unlike in traditional switchers, this may or may not trigger a video "take". Indeed, if the software configurations call for it, pressing the take button may trigger a complex auto-trans video mix with multiple key frames, playing one or more audio and/or video server channels while stopping playout on others, cross-fading multiple audio sources, etc. The button field occupying most of this panel allows the user to select from a group of pre-defined software configurations and force one or more of them to air to deal with unexpected production events such as breaking news storage.

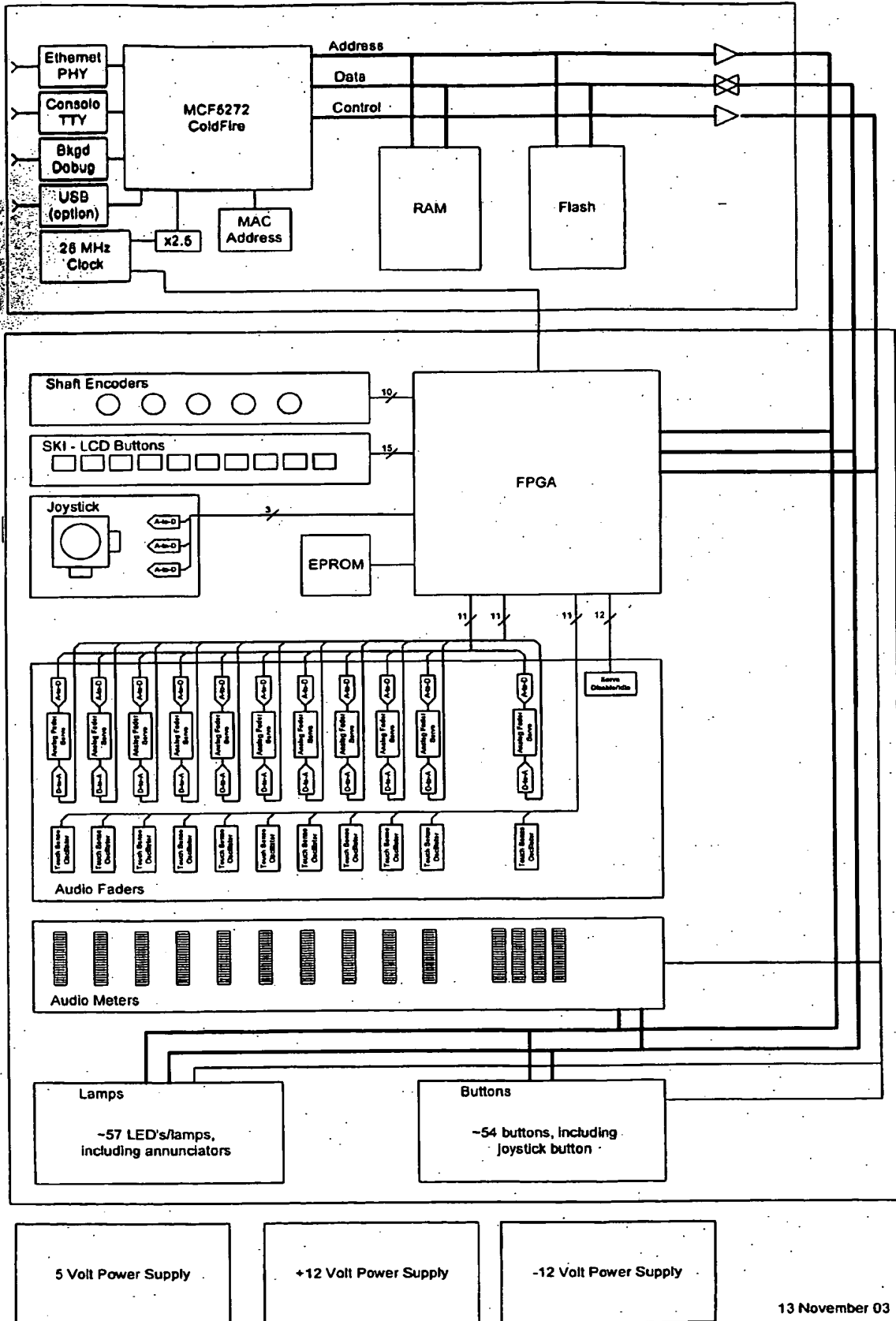
The drawing in Attachment 2 provides an example of the underlying physical architecture required to realize such panel functionality, and Attachment 3 describes how such a panel would relate to other physical and logical devices involved in the production.



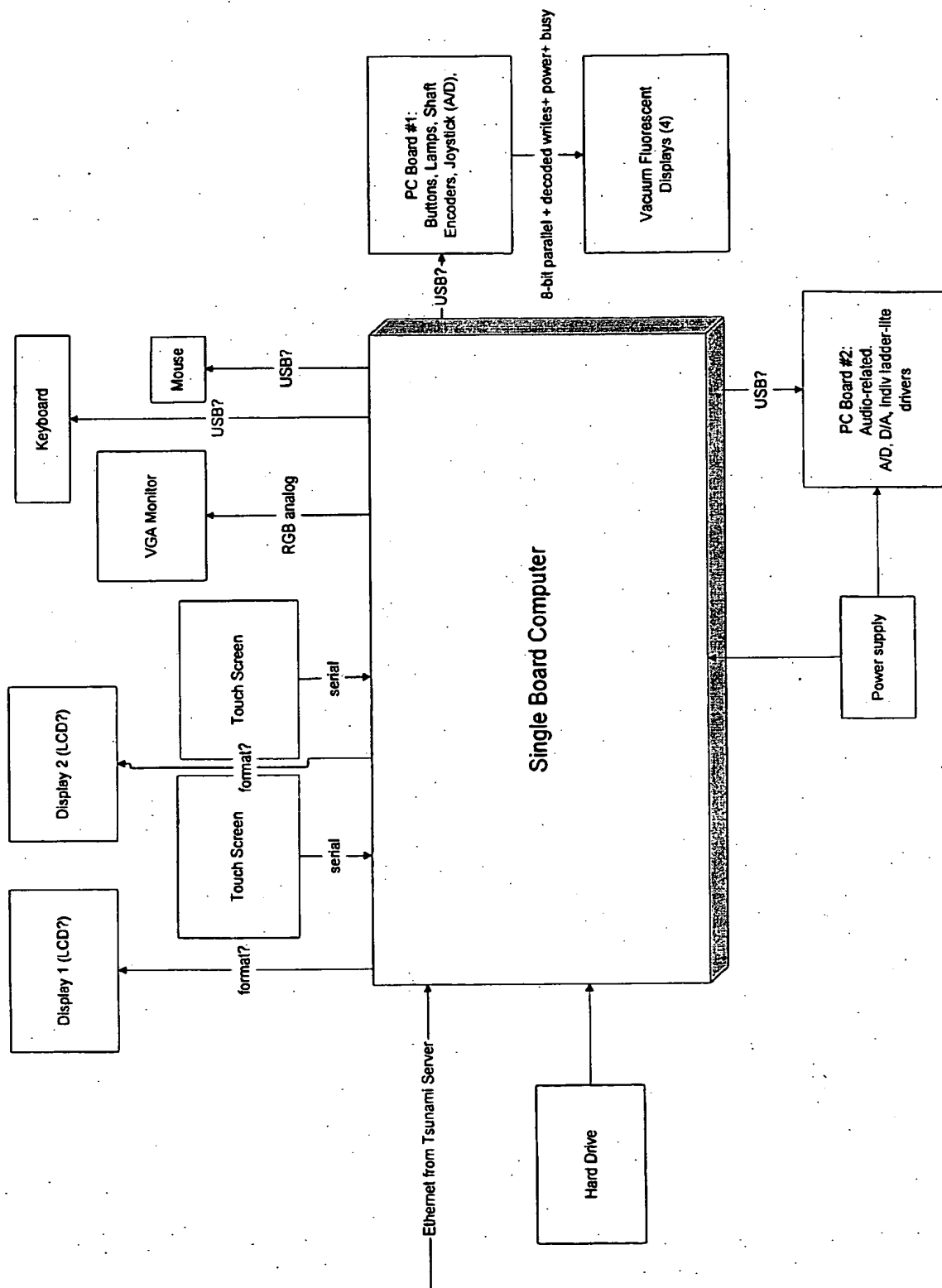
## 11/25/03. Rev 9



CONTROL PANEL BLOCK DIAGRAM



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